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(56) Documents Cited

GB 2289700 A	GB 2268533 A	GB 0509358 A
EP 0622516 A2	US 5216839 A	US 5214880 A
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(58) Field of Search

UK CL (Edition P) **E1J JGS JGX JHX JXX**
INT CL⁶ **E06B 3/88**

(54) Abstract Title

A protective strip for a door edge

(57) A protective strip 20 for mounting along an edge of a planar member, such as a door, so as to cover an edge face 18 and marginal regions of the faces 14, 15 of the member adjacent to the edge face, includes an elongate main body 21 of generally U-shaped cross-section defining a channel member 35 having a bottom wall 23 and a pair of resiliently deflectable side walls 24, the bottom wall being rigid relative to the side walls such that deflection of the side walls is accommodated by bending of the side walls only. A reinforcement member 30 may be provided for the bottom wall 23 and the two may be bonded together or coextruded. The outer surface of the bottom wall 23 may have an intumescent strip 60 and smoke seal 61 which may be mounted in a channel 62.

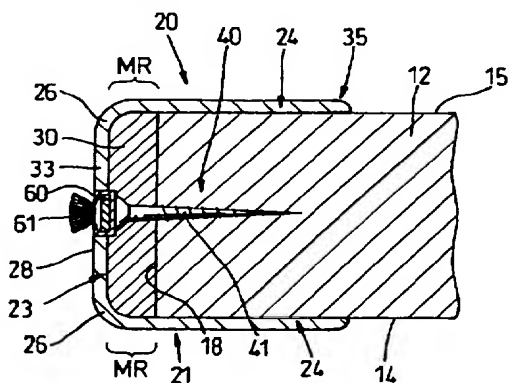


Fig. 2

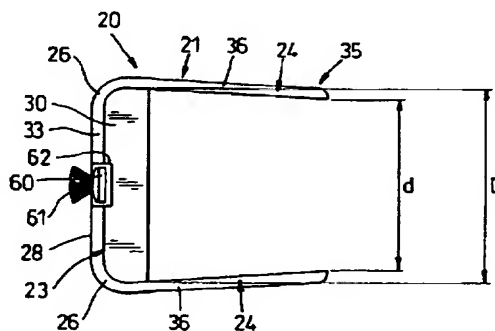


Fig. 3

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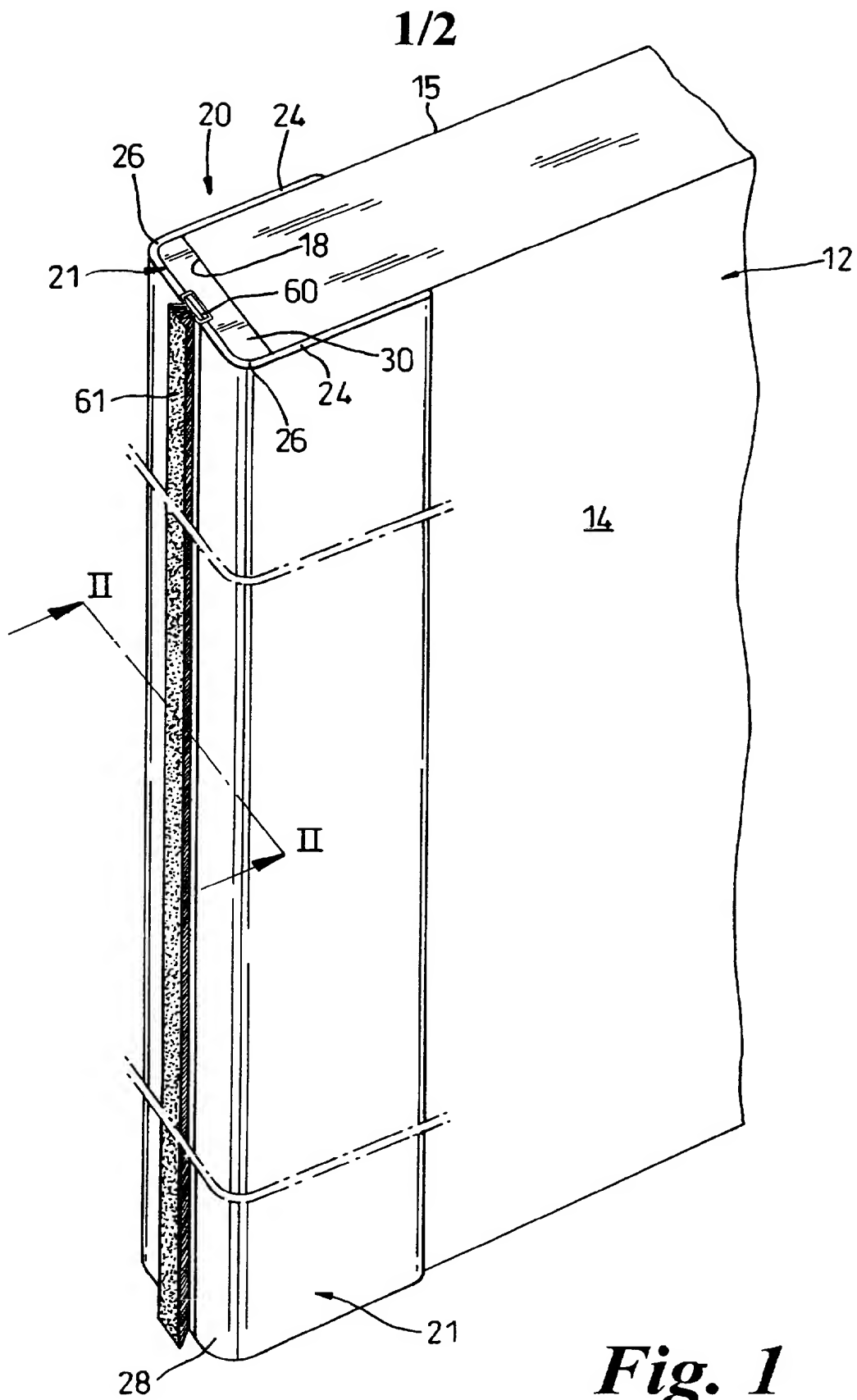


Fig. 1

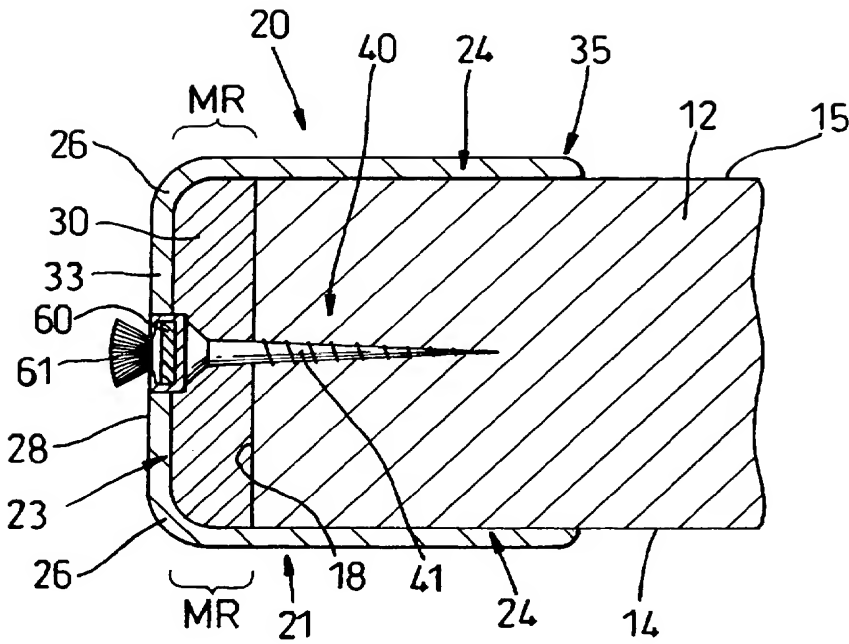


Fig. 2

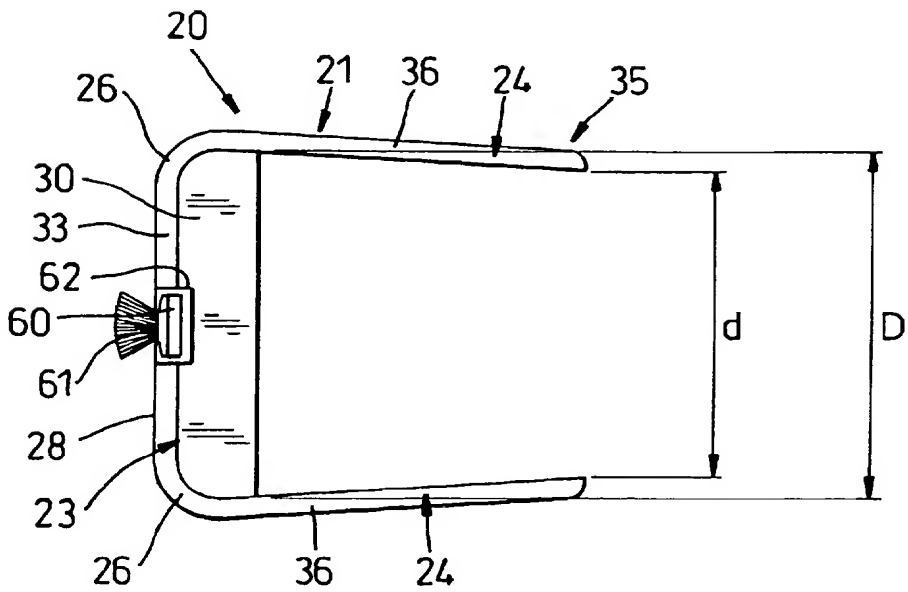


Fig. 3

A PROTECTIVE STRIP

The present invention relates to a protective strip which in particular, but not exclusively, may be used for protecting an edge of a door.

Swing doors as used in public buildings such as hospitals have a vertical side edge (opposite the hinged side edge) which is continually exposed to impacts and as a result are quickly damaged.

A general aim of the present invention is to provide a protective strip which can be mounted on a door so as to protect its side edges (opposite its hinged side edge) from impact damage.

According to one aspect of the present invention there is provided a protective strip for mounting along an edge of a planar member so as to cover an edge face of the planar member and marginal regions of the side faces of the planar member adjacent to said edge face, the protective strip including a main body which is elongate and of generally U-shaped cross-section so as to define a channel having a bottom wall and a pair of resiliently deflectable opposed side walls, the bottom wall being rigid relative to the side walls such that deflection of the side walls away from one another is accommodated by bending of the side walls only.

Preferably the terminal ends of the sidewalls define therebetween a mouth for the channel which has a width less than the width of the internal width of the bottom wall.

In a preferred embodiment the external face of the bottom wall is

provided with an intumescent strip.

Various aspects of the present invention are hereinafter described, with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of part of a door having a protective strip according to the present invention mounted thereon;

Figure 2 is a part cross-sectional view taken along line II-II in Figure 1;

Figure 3 is a plan view of the protective strip shown in Figures 1 and 2 prior to mounting on a door.

Referring initially to Figure 1 there is shown a door 12 having mounted thereon a protective strip 20 according to the present invention.

The strip 20 includes an elongate main body 21 which, in cross-section, is generally U-shaped to define a channel having a bottom wall 23 and opposed side walls 24.

The opposed side walls 24 are formed so as to be capable of being resiliently deflected toward/away from one another and the bottom wall 23 is formed so as to be relatively rigid with respect to the side walls 24.

Preferably as shown in Figure 3 the opposed side walls 24 are inclined toward one another such that $\underline{D} > \underline{d}$ wherein \underline{D} is the internal width or distance between the side walls 24 near to bottom wall 23 and \underline{d} is the width or distance between the terminal ends of side walls 24 which define the mouth to the channel.

As illustrated in Figures 1 and 2, the dimension \underline{D} is chosen to be substantially equal to the width of the door 12 on which the strip 20 is to be mounted.

Accordingly, since dimension \underline{d} is less than the width of the door 12, side walls 24 are deflected outwardly as the strip 20 is mounted onto the door 12. This ensures that the side walls 24 grippingly engage opposed outer faces 14, 15 of the door 12 and maintain face to face contact therewith.

In the embodiment illustrated in Figures 1 to 3, the main body 21 is fabricated from two components, viz a channel member 35 and an elongate reinforcement member 30. The channel member 35 is preferably formed from a suitable plastics sheet material of substantially constant thickness which is shaped into a channel, for example by suitable forming techniques such as heat softening and bending, so as to define a bottom portion 33 and opposed side portions 36.

The reinforcement member 30 is located internally of the channel member 35 and is secured in face to face contact with the internal face of the bottom portion 33 and marginal regions \underline{MR} of side portions 36 located adjacent to the bottom portion 33.

Preferably the reinforcement member 30 is secured in face to face contact with the bottom portion 33 and said marginal regions \underline{MR} by bonding either at selected regions or over the entire region where the reinforcement member 30 and channel member 35 are in face to face contact so as to provide rigid bottom wall 23 and preferably also isolate

the corners or transitional regions 26 inbetween the bottom portion 33 and side portions 36 from bending forces which are created on outward deflection of the side walls 24. Accordingly outward deflection of the side walls 24 is accommodated only by bending of the side walls 24 and not by bending of the bottom wall 23.

Preferably the reinforcement member 30 is formed from a plastics material having the desired impact and rigid characteristics and which is either secured to the channel member 35 by a suitable adhesive or is co-extruded with the channel member 35 and therefore secured thereto by fusion.

Preferably the channel member 35 is formed from a plastics material having the desired impact and resilient characteristics, such as impact resistant or toughened PVC, DARVIC (RTM). The wall thickness of the channel member may typically range between 2-2.5 mm.

The channel member 35 and reinforcement member 30 may be formed from the same or different plastics material.

The strip 20 is preferably fixedly secured to the door 12 by a plurality of fixing means 40, such as screws 41, which pass through bottom wall 23 and the edge face 18 of the door 12 and into the body of the door 12.

Accordingly the strip 20 can be easily removed by removal of the fixing means 40 and then withdrawal of the strip 20 from the door 12.

Since the fixing means 40 pass through the edge face 18 of door 12, it is

possible to easily adjust the distance between the outer edge face 28 of the strip 20 and edge face 18 of door 12 by the insertion of one or more shims (not shown) inbetween the opposed mating faces of the bottom wall 23 and edge face 18. This is permitted since screws 41 may be repeatedly removed and reinserted into the same screw holes during the adjustment process.

Such adjustment is desirable for ensuring that the outer edge face 28 (which in effect defines the outer edge face of the door) is correctly spaced from the opposed mating face of say a door surround or an opposed door (as in the case of a pair of swinging doors).

If desired, the outer edge face 28 may be provided with an elongate intumescent strip 60 which optionally may have a smoke seal 61. The strip 60 when provided is conveniently located within a channel 62 in which screws 41 may be conveniently positioned so as to be hidden from view by the strip 60.

Preferably, when an intumescent strip 60 is provided, the plastics material chosen for the main body 21 preferably has desired fire resistant capabilities so as not to compromise the fire resistant capabilities of the door 12. A suitable plastics material is unplasticised polyvinyl chloride.

A suitable plastics material which may be used where only impact resistance is required is ABS.

In the embodiment illustrated in Figures 1 to 3, the main body 21 is

fabricated from a channel member 35 and reinforcement member 30. It will be appreciated that, instead, the main body 21 may be formed in one piece, for example, by extrusion.

CLAIMS

1. A protective strip for mounting along an edge of a planar member so as to cover an edge face of the planar member and marginal regions of the side faces of the planar member adjacent to said edge face, the protective strip including a main body which is elongate and of generally U-shaped cross-section so as to define a channel having a bottom wall and a pair of resiliently deflectable opposed side walls, the bottom wall being rigid relative to the side walls such that deflection of the side walls away from one another is accommodated by bending of the side walls only.
2. A strip according to Claim 1 wherein the main body is an extrusion from a suitable resilient plastics material, the bottom wall having a thickness substantially greater than the thickness of each side wall to thereby render the bottom wall relatively rigid.
3. A strip according to Claim 1 wherein the main body comprises a channel member of generally U-shaped cross-section and an elongate reinforcement member located internally within the channel member, the channel member having a bottom portion and opposed side portions, and the elongate reinforcement member being secured to the bottom portion and marginal regions of the side portions adjacent to the bottom portion such that the bottom portion and said reinforcement member collectively define said bottom wall and the remainder of each side portion defines a respective side wall.
4. A strip according to Claim 3 wherein the reinforcement member

is a rigid extrusion from a suitable plastics material.

5. A strip according to Claim 4 wherein the channel member and reinforcement member are secured together by bonding.
6. A strip according to Claim 4 wherein the channel member and reinforcement member are co-extruded and are secured together by fusion.
7. A strip according to any preceding claim wherein the bottom wall is adapted to receive fixing means for insertion through the edge face of the planar member.
8. A strip according to any preceding claim wherein the bottom wall has an external face which in use defines an edge side face of the planar member, and an intumescent strip is provided on said external face.
9. A strip according to Claim 8 wherein said external face is provided with a channel for accommodating said intumescent strip.
10. A strip according to any preceding claim wherein the bottom wall has an internal width substantially the same as the width of the planar member onto which it is to be mounted, the side walls having terminal ends which define therebetween a mouth to said channel having a width less than said internal width of the bottom wall.
11. A protective strip substantially as described herein with reference to and as illustrated in the accompanying drawings.

12. A door having mounted thereon a protective strip according to any preceding claim.

Amendments to the claims have been filed as follows

1. A protective strip for mounting along an edge of a planar member so as to cover an edge face of the planar member and marginal regions of the side faces of the planar member adjacent to said edge face, the protective strip including a main body which is elongate and formed from an impact resistant plastics material, the main body being of generally U-shaped cross-section so as to define a channel having a bottom wall and a pair of resiliently deflectable opposed side walls, the bottom wall being rigid relative to the side walls such that deflection of the side walls away from one another is accommodated by bending of the side walls only, the bottom wall being adapted to receive fixing means for insertion through the edge face of the planar member.
2. A strip according to Claim 1 wherein the main body is an extrusion from a suitable resilient plastics material, the bottom wall having a thickness substantially greater than the thickness of each side wall to thereby render the bottom wall relatively rigid.
3. A strip according to Claim 1 wherein the main body comprises a channel member of generally U-shaped cross-section and an elongate reinforcement member located internally within the channel member, the channel member having a bottom portion and opposed side portions, and the elongate reinforcement member being secured to the bottom portion and marginal regions of the side portions adjacent to the bottom portion such that the bottom portion and said reinforcement member collectively define said bottom wall and the remainder of each side portion defines a respective side wall.

4. A strip according to Claim 3 wherein the reinforcement member is a rigid extrusion from a suitable plastics material.
5. A strip according to Claim 4 wherein the channel member and reinforcement member are secured together by bonding.
6. A strip according to Claim 4 wherein the channel member and reinforcement member are co-extruded and are secured together by fusion.
7. A strip according to any preceding claim wherein the bottom wall has an external face which in use defines an edge side face of the planar member, and an intumescent strip is provided on said external face.
8. A strip according to Claim 7 wherein said external face is provided with a channel for accommodating said intumescent strip.
9. A strip according to any preceding claim wherein the bottom wall has an internal width substantially the same as the width of the planar member onto which it is to be mounted, the side walls having terminal ends which define therebetween a mouth to said channel having a width less than said internal width of the bottom wall.
10. A protective strip substantially as described herein with reference to and as illustrated in the accompanying drawings.

11. A door having mounted thereon a protective strip according to any preceding claim.



Application No: GB 9722833.2
Claims searched: 1 - 12

Examiner: Andrew Jenner
Date of search: 5 November 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): E1J: JGS, JGX, JHX, JXX.

Int Cl (Ed.6): EO6B: 3/88

Other: Online: World Patents Index

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2289700 A WU - see fig 1	1, 10
X	GB 2268533 A ACCENT - see figs 5 and 7	1, 3, 8, 9, 10
X	GB 509358 A MORAWETZ - see fig 1	1, 10
X	EP 0622516 A2 COUPET - see figs	1-4, 8-10
X	US 5216839 WOODRUFF - see figs	1-4, 7, 10
X	US 5214880 WOODRUFF - see figs	1-4, 7, 10
X	US 5191704 ECONO - see figs 2, 5, 6, 9	1-2, 8-10

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